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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
TZENG, FRED

ART UNIT	PAPER NUMBER
2651	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/733,013	EHRLICH ET AL.	
	Examiner	Art Unit	
	Fred Tzeng	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 are presented for examination.

Specification

2. The abstract of the disclosure is objected to because on line 2, "maker-zones" should be "marker-zones" to be consistent with the rest of the specification disclosure. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: There is no summary section in the specification disclosure.

Appropriate correction is required.

4. On page 4 of the instant application specification, the same number 130 is repeatedly used for identifying different elements, namely, rotary actuator and ramp. Correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

6. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because in figure 3, it contains informal handwriting illustrations. Applicant

is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

7. Claim 21 is objected to because of the following informalities: on line 1, "if" should be "of" to be consistent with the rest of claims and specification disclosures. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Moran et al (USPN 6,738,205), hereafter as Moran.

RE claim 1, Moran discloses a marker-zone to determine a position of a head on a printed media for use in self-servo writing of a data storage device **(see column 3 lines 14-20 and column 5 line 64 – column 6 lines 8, 35-64; i.e., the servo**

reference pattern 12 is the marker-zone for determining the positioning of a head 34 or 36 on a printed media disk surface 14 or 38 respectively in self-servo writing), comprising: one or more edges defined by a radial transition from a presence of a transition-pair to an absence of the transition-pair **(see figure 9A and column 12 lines 26-34; i.e., the edges of segments 51 and 52 defined by radial transition from a presence of each pair of timing segments 50 transition-pair to an absence of the timing segments 50 transition-pair)**; wherein at least one of the one or more edges is located at a radial position **(see figure 9A and column 12 lines 41-43; the edges of segments 51 and 52 are located at radial position)** and wherein the at least one of the one or more edges precedes one or more chevrons located at the radial position **(see column 12 lines 26-34 and figure 9A and column 9 line 22; i.e., the edge of slanted segment 51 precedes the chevron 52 at the radial position and chevron segment 52 interspersed with segment 51)**.

RE claim 2, Moran discloses that the one or more chevrons are a zig-burst and a zag-burst **(see column 12 lines 26-32 and figure 9A; the zig-burst 51 and zag-burst 52 are chevrons)**.

RE claim 3, Moran discloses that the one or more edge includes a first edge and a second edge; and wherein the at least one of the one or more edges is the first edge **(see figure 9A; i.e., among the one or more edges of slanted segments 51 and 52, either the edge of slanted segment 51 or the edge of slanted segment 52 can be the first edge or second edge as they are interspersed together with each other)**.

RE claim 4, Moran discloses a template pattern to determine a position of a head on a printed media for use in self-servo writing of a data storage device **(see column 3 lines 14-20 and column 5 line 64 – column 6 lines 8, 35-64; the servo reference pattern 12 on the reference disk 16 is the template pattern for determining positioning of a head 34 or 36 on a printed media disk surface 14 or 38 respectively for use in self-servo writing of a data storage device 22)**, comprising: a plurality of chevrons **(see column 12 lines 26-34 and figure 9A; the plurality of chevrons 51 and 52)**; a plurality of pulse preceding the plurality of chevrons, the plurality of pulses extending from an inner diameter of the printed media to an outer diameter of the printed media **(see figures 3, 4A, 5A, 5B, 7 and column 8 lines 50-63 and column 9 lines 46-52; the plurality of timing segments pulse 50 preceding the plurality of chevrons 51 and 52, the plurality of pulses extending from an inner diameter Ri of the printed media disk 16 to an outer diameter Ro of the disk 16)**; wherein at least one of the plurality of pulses includes a gap such that the pulse is discontinuous **(see figures 5A and 5B and column 8 line 64 – column 9 line 10; i.e., the gap Δt phase difference between the trailing edge 62 of the timing segment 50 pulse and the leading edge 64 of the next slanted segment 52 pulse such that the pulse is discontinuous)**; and wherein the position is determined by a location of the head relative to the gap **(see column 9 lines 3-10; relative radial position of the head 34 within a band defined by the extent of a slanted segment 52 can be determined by measuring a differential time gap Δt between passage of a trailing**

edge 62 of the timing segment 50 by the head 34, and arrival of a leading edge 64 of the next slanted segment 52 at the head 34).

RE claim 5, Moran discloses that the gap includes a first edge and a second edge **(see figure 5B and column 8 line 64 – column 9 line 10; the gap Δt includes a first edge 62 and a second edge 64)**.

RE claim 6, Moran discloses that the position includes a gross position and a fine position **(see column 8 lines 6-17; i.e., the gross/coarse position information 47 and fine position information 49)**; wherein the gross position is determined by the location relative to one or both of the first edge and the second edge **(see column 8 lines 11-21 and column 10 lines 21-23; the first edge or second edge of slanted segments 51 are utilized to gross/coarsely determine the radial position of the head 34 relative to the pattern 12)**; and wherein the fine position is determined by a phase of at least one of the plurality of chevrons at the location **(see column 8 lines 13-14, 18-21, 64-67 and column 9 lines 1-10; i.e., the radial fine position of head 34 defined by chevron segment 52 is determined by measuring a phase difference Δt between passage of a group of one or more timing segments 50 by the head 34 and arrival of at least one of the plurality of chevrons segments 52 at the head 34 location)**.

RE claim 7, Moran discloses that the at least one of the plurality of chevrons at the location comprises one or both of a zig-burst and a zag-burst **(see column 9 lines 39-43 and figure 6 and column 12 lines 26-34 and figure 9A; i.e., one of the chevrons 52 comprises the zig-burst 52 or zag-burst 52)**.

RE claim 8, Moran discloses that the plurality of chevrons comprises one or both of a plurality of zig-bursts and a plurality of zag-bursts **(see column 9 lines 39-43 and figure 6 and column 12 lines 26-34 and figure 9A; the plurality of chevrons 52 comprise the plurality of zig-bursts 52 or a plurality of zag-bursts 52)**.

RE claim 9, Moran discloses that the head is a read head **(see column 8 lines 55-59; the read element 37)**.

RE claim 10, Moran discloses that the head is an MR head **(see column 8 lines 55-58; the MR head 34)**.

RE claim 11, Moran discloses a pattern to determine a position of a head on a media **(see column 3 lines 14-20 and column 5 line 64 – column 6 lines 8, 35-64; the servo reference pattern 12 on the reference disk 16 is used to determine a position of head 34 on the disk media 16)**, comprising: a plurality of pulses extending radially along a surface of the media, at least one of the plurality of pulses including a gap such that the pulse is discontinuous **(see figures 3, 4A, 5A & 5B and column 7 lines 45-67 and column 8 line 64 – column 9 line 10; i.e., the plurality of spoke 11 comprising many servo information pulses and timing information pulses extending radially along a surface 14 of the disk media 16, and there is a gap Δt between timing segments 50 pulse and fine servo position segments 52 pulse such that the pulse is discontinuous)**; and a plurality of chevrons located such that a portion at least one of plurality of chevrons is located at each point along a radius of the surface **(see column 12 lines 26-40 and column 9 lines 11-12 and figures 3, 5A & 9A; the plurality of chevrons segments 52 located such that a portion at least one**

of plurality of chevrons 52 is located at each point along a radius of the surface 14 of the disk 16); wherein the position is determined by a location of the head relative to the gap **(see column 9 lines 3-10; relative radial position of the head 34 within a band defined by the extent of a slanted segment 52 can be determined by measuring a differential time gap Δt between passage of a trailing edge 62 of the timing segment 50 by the head 34, and arrival of a leading edge 64 of the next slanted segment 52 at the head 34)**.

RE claim 12, Moran discloses that the gap includes a first edge and a second edge **(see figure 5B and column 8 line 64 – column 9 line 10; the gap Δt includes a first edge 62 and a second edge 64)**.

RE claim 13, Moran discloses that the position includes a gross position and a fine position **(see column 8 lines 6-17; i.e., the gross/coarse position information 47 and fine position information 49)**; wherein the gross position is determined by the location relative to one or both of the first edge and the second edge **(see column 8 lines 11-21 and column 10 lines 21-23; the first edge or second edge of slanted segments 51 are utilized to gross/coarsely determine the radial position of the head 34 relative to the pattern 12)**; and wherein the fine position is determined by a phase of at least one of the plurality of chevrons at the location **(see column 8 lines 13-14, 18-21, 64-67 and column 9 lines 1-10; i.e., the radial fine position of head 34 defined by chevron segment 52 is determined by measuring a phase difference Δt between passage of a group of one or more timing segments 50 by the head 34**

and arrival of at least one of the plurality of chevrons segments 52 at the head 34 location).

RE claim 14, Moran discloses that the at least one of the plurality of chevrons at the location comprises one or both of a zig-burst and a zag-burst **(see column 9 lines 39-43 and figure 6 and column 12 lines 26-34 and figure 9A; i.e., one of the chevrons 52 comprises the zig-burst 52 or zag-burst 52)**.

RE claim 15, Moran discloses that the plurality of chevrons comprises one or both of a plurality of zig-bursts and a plurality of zag-bursts **(see column 9 lines 39-43 and figure 6 and column 12 lines 26-34 and figure 9A; the plurality of chevrons 52 comprise the plurality of zig-bursts 52 or a plurality of zag-bursts 52)**.

RE claim 16, Moran discloses that the head is a read head **(see column 8 lines 55-59; the read element 37)**.

RE claim 17, Moran discloses that the head is an MR head **(see column 8 lines 55-59; the MR head 34)**.

RE claim 18, Moran discloses a data storage system having a rotatable medium for storing data **(see column 1 lines 15-17 or column 6 lines 35-38; the disk drive 22 having rotatable disk 16 for storing data), comprising: a housing (see column 3 lines 21-24; the sealed housing; or see column 6 line 39; the enclosed HDA 24)**; a spindle connected with the housing, the rotatable medium being connected with the spindle **(see column 6 lines 35-41; the spindle 20 connected with the enclosed housing HDA 24, the rotatable medium disk 16 or disk 18 being connected with the spindle 20)**; an actuator connected with the housing **(see column 6 lines 41-42;**

the actuator 28); a head connected with the actuator such that the head can be positioned over a surface of the rotatable medium **(see column 6 lines 41-46; head 34 connected with the actuator 28 such that the head can be positioned over a surface of the rotatable disk 16)**; wherein the surface includes a pattern to self-servo write the rotatable medium **(see column 6 lines 35-36, 59-65; the surface 14 includes a pattern 12 to self-servo write precise servo patterns on each storage surface 38 including the reference surface 14 in accordance with a final/product servo pattern features plan)**, the pattern having; a plurality of pulses extending radially along a surface of the media, at least one of the plurality of pulses including a gap such that the pulse is discontinuous **(see figures 3, 4A, 5A & 5B and column 7 lines 45-67 and column 8 line 64 – column 9 line 10; i.e., the plurality of spoke 11 comprising many servo information pulses and timing information pulses extending radially along a surface 14 of the disk media 16, and there is a gap Δt between timing segments 50 pulse and fine servo position segments 52 pulse such that the pulse is discontinuous)**; and a plurality of chevrons located such that a portion at least one of plurality of chevrons is located at each point along a radius of the surface **(see column 12 lines 26-40 and column 9 lines 11-22 and figures 3, 5A & 9A; the plurality of chevrons segments 52 located such that a portion at least one of plurality of chevrons 52 is located at each point along a radius of the surface 14 of the disk 16)**; wherein the position is determined by a location of the head relative to the gap **(see column 9 lines 3-10; relative radial position of the head 34 within a band defined by the extent of a slanted segment 52 can be determined by**

measuring a differential time gap Δt between passage of a trailing edge 62 of the timing segment 50 by the head 34, and arrival of a leading edge 64 of the next slanted segment 52 at the head 34).

RE claim 19, Moran discloses that the gap includes a first edge and a second edge **(see figure 5B and column 8 line 64 – column 9 line 10; the gap Δt includes a first edge 62 and a second edge 64)**.

RE claim 20, Moran discloses that the position includes a gross position and a fine position **(see column 8 lines 6-17; i.e., the gross/coarse position information 47 and fine position information 49)**; wherein the gross position is determined by the location relative to one or both of the first edge and the second edge **(see column 8 lines 11-21 and column 10 lines 21-23; the first edge or second edge of slanted segments 51 are utilized to gross/coarsely determine the radial position of the head 34 relative to the pattern 12)**; and wherein the fine position is determined by a phase of at least one of the plurality of chevrons at the location **(see column 8 lines 13-14, 18-21, 64-67 and column 9 lines 1-10; i.e., the radial fine position of head 34 defined by chevron segment 52 is determined by measuring a phase difference Δt between passage of a group of one or more timing segments 50 by the head 34 and arrival of at least one of the plurality of chevrons segments 52 at the head 34 location)**.

RE claim 21, Moran discloses that the at least one of the plurality of chevrons at the location comprises one or both of a zig-burst and a zag-burst **(see column 9 lines**

39-43 and figure 6 and column 12 lines 26-34 and figure 9A; i.e., one of the chevrons 52 comprises the zig-burst 52 or zag-burst 52).

RE claim 22, Moran discloses that the plurality of chevrons comprises one or both of a plurality of zig-bursts and a plurality of zag-bursts **(see column 9 lines 39-43 and figure 6 and column 12 lines 26-34 and figure 9A; the plurality of chevrons 52 comprise the plurality of zig-bursts 52 or a plurality of zag-bursts 52)**.

RE claim 23, Moran discloses that the head is a read head **(see column 8 lines 55-59; the read element 37)**.

RE claim 24, Moran discloses that the head is an MR head **(see column 8 lines 55-59; the MR head 34)**.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication from the examiner should be directed to Fred Tzeng whose telephone number is 571-272-7565. The examiner can normally be reached on weekdays from 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 571-273-7565 for After Final communications.

12. Informal regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred F. Tzeng

April 04, 2005